

Appl. No. 10/523,331
Amdt. Dated March 16, 2007
Reply to Office Action of February 7, 2007

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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for manufacturing a device-incorporated substrate having an insulating layer, a conductor pattern thereon, a void section formed therein, and an electric device housed in said void section and connected to said conductor pattern, said method comprising:

providing an insulating layer;

a void section forming step of forming a void section in said insulating layer;

providing a transfer sheet made of metal separate from, and unconnected to, said insulating layer;

a pattern forming step of forming said a conductor pattern ~~on-a over~~ one surface of a said transfer sheet made of metal;

a pattern transfer step of adhering said transfer sheet and said insulating layer to each other with said conductor pattern therebetween, and ~~removing said transfer sheet; and~~

a transfer sheet removal step for removing said transfer sheet from at least said conductor pattern;

a device housing step of housing said electric device within said void section, with said electric device connected to said formed conductor pattern; and

a sealing step of forming a seal resin layer between said conductor pattern and said electric device;

and characterized in that removal of said transfer sheet wherein said transfer sheet removal step includes a step of dissolving and removing at least a part of said transfer sheet, and

Appl. No. 10/523,331
Amdt. Dated March 16, 2007
Reply to Office Action of February 7, 2007

wherein said removal of said transfer sheet is performed after forming a seal resin layer between said conductor pattern and said electric device said pattern transfer step occurs after said pattern forming step, and said transfer sheet removal step occurs after said pattern transfer step.

2. (Currently Amended) The method for manufacturing a device-incorporated substrate as described in claim 1, characterized in that:

said transfer sheet comprises a metallic base, and a dissolvere metal layer that is layered so as to be separable with respect to said metal base material and onto which said conductor pattern is formed; and

removal of said transfer sheet during said transfer sheet removal step includes a step of separating and removing said metal base material from said dissolvere metal layer, and a step of dissolving and removing said dissolvere metal layer.

3. (Original) The method for manufacturing a device-incorporated substrate as described in claim 1, characterized in that:

said pattern forming step is done by an electroplating method.

4. (Currently Amended) The method for manufacturing a device-incorporated substrate as described in claim 1, characterized in that:

said pattern forming step includes a step of forming a conductor pattern ~~on~~ over one surface of said transfer sheet, and a step of burying an insulating material in the gaps in said formed conductor pattern, and of flattening said one surface of said transfer sheet.

5. (Currently Amended) The method for manufacturing a device-incorporated substrate as described in claim 1, characterized in that:

Appl. No. 10/523,331
Amdt. Dated March 16, 2007
Reply to Office Action of February 7, 2007

an adhesive material is applied onto over one surface of said insulating layer in advancee in prior to said pattern transfer step.

6. (Currently Amended) The method for manufacturing a device-incorporated substrate as described in claim 1, characterized in that:

said device housing step includes a step of adhering said transfer sheet and said insulating layer to each other, and thereafter housing said electric device into said void section and connecting said electric device to said conductor pattern.

7. (Canceled)

8. (Original) The method for manufacturing a device-incorporated substrate as described in claim 2, characterized in that:

said dissolvee metal layer and said conductor pattern are made of different metal material, and said step of dissolving and removing said dissolvee metal layer is done by using an etchant which is able to dissolve said dissolvee metal layer but is unable to dissolve said conductor pattern.

9. (Original) The method for manufacturing a device-incorporated substrate as described in claim 1, characterized in that:

said void section forming step includes a step of forming a through hole together with said void section, for connecting both surfaces of said insulating layer, and a step of filling conductive material into said through hole.

10. (Currently Amended) The method for manufacturing a device-incorporated substrate as described in claim 9, said method characterized by further comprising:

Appl. No. 10/523,331
Am dt. Dated March 16, 2007
Reply to Office Action of February 7, 2007

layering multiple ones of each of said formed device-incorporated substrates multiply with electric connection at connections formed via said filled through holes hole, after said step of filling conductive material.

Claims 11-23 (Canceled)

Please add the following new claims:

24. (New) The method for manufacturing a device-incorporated substrate as described in claim 2, characterized in that said transfer sheet further comprises an adhesive resin formed between said metallic base and said dissolvee metal layer.

25. (New) The method for manufacturing a device-incorporated substrate as described in claim 1, characterized in that said transfer sheet is at least 100 μm thick in order to provide rigidity to the transfer sheet.

26. (New) The method for manufacturing a device-incorporated substrate as described in claim 2, characterized in that said dissolvee metal layer is formed to a thickness of 5 μm or less.

27. (New) The method for manufacturing a device-incorporated substrate as described in claim 26, characterized in that said metal base layer is formed to a thickness substantially larger than said dissolvee metal layer in order to provide rigidity to the transfer sheet.

28. (New) The method for manufacturing a device-incorporated substrate as described in claim 2, characterized in that said transfer sheet further comprises a heat foaming layer formed between said metallic base and said dissolvee metal layer.

Appl. No. 10/523,331
Amdt. Dated March 16, 2007
Reply to Office Action of February 7, 2007

29. (New) The method for manufacturing a device-incorporated substrate as described in claim 2, characterized in that said transfer sheet removal step further comprises a step of removing said metal base by a physical process prior to removing said dissolvee metal layer by said dissolving process.